UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,552	10/23/2003	Chang-June C.J. Yoon	2803.0246C	6410

27896 7590 03/31/2010		

EDELL, SHAPIRO & FINNAN, LLC
1901 RESEARCH BOULEVARD
SUITE 400
ROCKVILLE, MD 20850

EXAMINER
GEORGEWILL, OPIRIBO

ART UNIT	PAPER NUMBER
2617	

NOTIFICATION DATE	DELIVERY MODE
03/31/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

epatent@usiplaw.com

	Application No.	Applicant(s)
Office Action Summary	10/690,552	YOON ET AL.
	Examiner	Art Unit	
	OPIRIBO GEORGEWILL	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 December 2009*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-17,19-34 and 36-39* is/are rejected.
7)☒ Claim(s) *18,35 and 40* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
       Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
       Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20100325

DETAILED ACTION

1. This office action is responsive to applicant's amendment filed on 12/24/09

Response to Arguments

2. Applicant's arguments filed 12/24/09 have been fully considered but they are not persuasive.

3. On page 14 of the Applicant's Response, applicant argues that provisional application (60/490388) of cited reference Schrader (2005/0243765) is the only date that can be relied on as prior art date against applicant disclosure and the provisional application does not have support for Fig. 3 and the corresponding description which was used in the office action.

4. The Examiner respectfully disagrees with Applicant's argument, because the provisional applicant references above discloses the subject matter cited by the examiner. The provisional application in page 23 to 38, clearly discloses the "joining two meshes of piconet", which is corresponding to paragraph [91] of the non-provisional application. The absence of fig. 3 in the drawings is moot since the process is described in the specification.

5. Claims 17, 34 and 39 where rejected under 35 USC 103 over Schrader in view of Rune and further in view of Ohta presented in the last Office action paper number 15, mailed on 10/07/09. Applicant's arguments filed on 12/24/09 have been fully considered but are not persuasive. The Official Notice, presented in the last Office action page 16 concerning merging of network with a priority

based on size of active member of a network – the office action erroneously

recites size of the active member of the network, it is there by corrected to recite

size of the total member of the a network. Rune (US 20010029166 A1) is cited

herein as evidence to support examiner's taking of office notice: paragraph 127,

clearly teaches that number of units in the existing ad hoc network is used when

deciding what ad hoc network to join (priority)

6. On page 15, second paragraph, of Applicant Response, applicant argues that

the office action fails to show, to the applicant, how the referenced section of

Ohta ("An Adaptive Multihop Clustering Scheme for Highly Mobile Ad Hoc

Networks") disclose merge priority based on comparison of the number or count

of active communication units in a neighboring network with the number or count

of total communication units in the neighboring network as recited in claims 17,

34, and 39.

7. The Examiner respectfully disagrees, since Ohta (col 1, lines 13 – 18) clearly

shows that number of control packets (which one having ordinary skills in the arts

would recognize as active communication unit is a factor considered (merge

priority) when merging networks)). Combining this teaching Ohta with the

teaching of Rune - as presented regarding the official notice - clearly it is obvious

to a person having ordinary skills in the art that the checking of priority of active

communication devices and the checking of total number of communication units

is the act of comparing since both factors are taken into account before the

merge is carried out. Examiner notes that Rune as used in the rejection of claim

16 discloses multiple priorities.

8. Therefore, in view of above reasons, Examiner maintains rejections.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-
(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent; or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, *except* that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English.

10. **Claims 1–3, 8 –15, 19, 20, 25 – 32, 36 and 37 are rejected under 35**

U.S.C. 102(e) as being anticipated by Schrader et al. US Pub No.

20050243765 A1.

Re claim **1**, Schrader discloses a communication network having a plurality of

communication units a communication unit that transmits messages to and

receives messages from a neighboring communication units (abstract, paragraph

[2]), the communication unit comprising

a transmitter to transmit outgoing messages to a neighboring communication unit

(paragraph [3], one mesh network directly communicates with a member of the

other network)

receiver to receive incoming message from a neighboring communication unit (paragraph [3], one mesh network directly communicates with a member of the other network)

a storage unit to store communication unit connectivity information (paragraph [93], by receiving the beacon from corresponding member; see fig 1, member station ID. A unit would have to have its connectivity information stored for it to transmit it via the beacon. See paragraph [85], maintaining implies storage unit), neighboring communication unit connectivity information (paragraph [93], by receiving the beacon from the corresponding member; see fig 1, member station ID. This ID is sent to (received by, stored) this unit) and merge request information (paragraph [94], submits a Request US Join); and

a processor to control said transmission of outgoing message and reception of incoming message (paragraph [2], controlling and sharing access implies outgoing and messages and reception of incoming messages; known and expected that a the system disclosed contains a process to perform the controlling), wherein the processor includes

a merge module to examine said stored communication unit connectivity information, stored neighboring communication unit connectivity information and stored merge request information to determine merge parameters to control merge between the communication unit and a neighboring communication network (paragraph [95]; fig 3, ref 25)

a controller module to control merging of the communication unit with said

neighboring communication network in accordance with said merge control

parameters determined by said merge module (paragraph [95], fig 3, ref 25,

26)

The rejection of claim 1 is incorporated herein. Claims 2, 3, 8, 9 depend on

claim 1 and only further limitations will be addressed below.

Re claim **2**, Schrader discloses the transmitter transmits said outgoing

message in the form of radio signals (paragraph [9], radio)

Re claim **3**, Schrader discloses the receiver receives said incoming message

in the form of radio signals (paragraph [9], radio)

Re claim **8**, Schrader discloses that the storage unit further includes a

connectivity module to store at least one of one of an identifier for a neighboring

communication unit (paragraph [93], SID)

Re claim **9**, Schrader discloses that the processor further includes a search

module to determine search parameters that control the manner in which the

communication unit searches for neighboring communication units and

neighboring communication network nodes (paragraph [85] – [85], search for

neighboring communication unit; paragraph [91] – [92], search for neighboring

network communication nodes; paragraph [78], search parameter); wherein the

controller module further controls transmission of outgoing messages and

reception of incoming messages in a manner consistent with search parameter

determined by the search module (paragraph [78])

The rejection of claim 9 is incorporated herein. Claim 10, 13 depends on claim 9 and only further limitations will be addressed below.

Re claim **10**, Schrader discloses that the search module includes a transmitting rate module to determine a rate at which the communication unit transmits outgoing messages containing network connectivity information (paragraph [78], CEC)

The rejection of claim 10 is incorporated herein. Claim 11 depends on claim 10 and only further limitations will be addressed below.

Re claim **11**, Schrader discloses that the transmit rate module determines the transmit rate based upon user configurable reference transmit rate value and a percentage of the network size parameter value for the communication network to which the communication unit belongs (paragraph [95])

The rejection of claim 11 is incorporated herein. Claim 12 depends on claim 11 and only further limitations will be addressed below.

Re claim **12**, Schrader discloses that the transmit rate is proportional to the percentage of network size parameter value (paragraph [95])

Re claim **13**, Schrader discloses that the search module includes a scan window module to determine a scan window interval during which the communication unit receives incoming network connectivity messages (fig 2, paragraph [95], ΔTmax); and a scan window delay module to determine a delay between scan window (fig 2, MF1, A TDMA system such as this, it is known and expected to no scan for information during the device assigned time slot)

The rejection of claim 13 is incorporated herein. Claim 14 depends on claim 13 and only further limitations will be addressed below.

Re claim **14**, Schrader discloses that the scan window module determines the scan window interval based upon a user configurable reference scan window value and a percentage of network size parameter value for the communication network to which the communication unit belongs (paragraph [95])

The rejection of claim 14 is incorporated herein. Claim 13 depends on claim 14 and only further limitations will be addressed below.

Re claim **15**, Schrader disclose that the scan window interval is inversely proportional to the percentage of network size parameter value (paragraph [95])

Re claim **19**, it has similar limitations claim 1 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **20**, as applied to claim 19 above, it has similar limitations claim 2 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **25**, as applied to claim 19 above, it has similar limitations claim 8 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **26**, as applied to claim 19 above, it has similar limitations claim 9 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **27**, as applied to claim 26 above, it has similar limitations claim 10 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **28**, as applied to claim 27 above, it has similar limitations claim 11 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **29**, as applied to claim 18 above, it has similar limitations claim 12 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **30**, as applied to claim 26 above, it has similar limitations claim 13 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **31**, as applied to claim 30 above, it has similar limitations claim 14 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **32**, as applied to claim 31 above, it has similar limitations claim 15 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **36**, it has similar limitations claim 1 above which are met by the reference above and is rejected for the same reason of anticipation as above.

Re claim **37**, as applied to claim 36 above, it has similar limitations claim 2

above which are met by the reference above and is rejected for the same reason

of anticipation as above.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: *(See MPEP Ch. 2141)*

    a. Determining the scope and contents of the prior art;
    b. Ascertaining the differences between the prior art and the claims in issue;
    c. Resolving the level of ordinary skill in the pertinent art; and
    d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

12. **Claims 4 – 7, 21 – 24 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Schrader et al. US Pub No. 20050243765 A1 in view of

Applicant's Admitted Prior Art (henceforth AAPA).

The rejection of claim 1 is incorporated herein. Claim 4 depends on claim 1

and only further limitations will be addressed below.

Re claim **4**, Schrader is silent on the processor including a synchronization module to determine a Time of Day synchronization mode used by the communication unit. AAPA in analogous art, discloses a communication network having a plurality of communication units, a communication unit that transmits and receives messages from neighboring units (page 1, lines 9 - 28). AAPA further discloses that determining the a Time of Day synchronization mode used by the communication unit (page 1, lines 13 – 14, selection of the TOD algorithm (mode) is based on a parameter; to select would mean that one has knows their choices (determine a type of mode)). It would therefore have been obvious to a person having ordinary skills in the art, at the time the invention was made, to incorporate the teaching to AAPA into the disclosure of Schrader to have a synchronization module to determine the time of day synchronization mode used by the communication unit so as to establish common network time (page 1, line 10).

The rejection of claim 4 is incorporated herein. Claim 5 depends on claim 4 and only further limitations will be addressed below.

Re claim **5**, Schrader in view of AAPA discloses that the synchronization module further includes a start up module to join the communication unit to an existing communication network at power up using a user configurable primary Time of Day synchronization mode (AAPA: page 5, lines 2 - 6)

The rejection of claim 5 is incorporated herein. Claim 6 depends on claim 5 and only further limitations will be addressed below.

Re claim **6**, Schrader in view of AAPA discloses that the synchronization module further includes a time of day module to change the time of day synchronization mode of the communication unit in response to the communication unit failing to join a communication network with neighboring communication unit using a previously selected Time of Day synchronization mode and to join the communication unit to an existing communication network using the changed time of day synchronization mode (AAPA: page 3, lines 23 - 24, AAPA discloses that nodes without timing source search for CS and LNE messages, page 5, lines 9 – 24; page 3, lines 6 – 8)

The rejection of claim 6 is incorporated herein. Claim 7 depends on claim 6 and only further limitations will be addressed below.

Re claim **7**, Schrader in view of AAPA discloses that the synchronization module further comprises a network start module to start an isolated network with neighboring communication nodes upon failing to join a communication network with previously selected Time of Day synchronization modes. (AAPA: page 5, lines 25 – 25 – 30)

Re claim **21**, as applied to claim 21 above, it has similar limitations claim 4 above which are met by the reference above and is rejected for the same reason of obvious as above.

Re claim **22**, as applied to claim 21 above, it has similar limitations claim 5 above which are met by the reference above and is rejected for the same reason of obvious as above.

Re claim **23**, as applied to claim 22 above, it has similar limitations claim 6 above which are met by the reference above and is rejected for the same reason of obvious as above.

Re claim **24**, as applied to claim 23 above, it has similar limitations claim 7 above which are met by the reference above and is rejected for the same reason of obvious as above.

13. **Claims 16, 33, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrader et al. US Pub No. 20050243765 A1 in view of Rune et al., US Pub No. 20010029166 A1.**

The rejection of claim 1 is incorporated herein. Claim 16 depends on claim 1 and only further limitations will be addressed below.

Re claim **16**, Schrader discloses the claimed invention but is silent on a merge priority module. Rune in analogous art discloses a communication network having a plurality of communication units, a communication unit that transmits messages and receives messages from a neighboring communication unit (see abstract). Rune further discloses information exchanged before join them includes a priority parameter to this used to connect to another network (paragraph [127]). It would therefore have been obvious to a person having ordinary skills in the art, at the time the invention was made, to incorporate the teaching of Rune into the disclosure of Schrader, to have a merge priority module to determine a merge priority for each neighboring communication network in

response to the communication unit controlling said merging, wherein the merge priority controls the priority in which the communication unit allows the communication network to which the communication unit belongs to merge with neighboring communication networks so as to have an efficient merge (paragraph [32])

Re claim **33**, as applied to claim 19 above, it has similar limitations claim 16 above which are met by the reference above and is rejected for the same reason of obvious as above.

Re claim **38**, as applied to claim 36 above, it has similar limitations claim 16 above which are met by the reference above and is rejected for the same reason of obvious as above.

14. **Claims 17, 34 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrader et al. US Pub No. 20050243765 A1 in view of Rune et al., US Pub No. 20010029166 A1 and further in view of Ohta et al., "An Adaptive multihop clustering scheme for highly mobile ad hoc networks", April 2003.**

The rejection of claim 16 is incorporated herein. Claim 17 depends on claim 16 and only further limitations will be addressed below.

Re claim **17**, Schrader in view of Rune discloses a merge priority but is silent on the criteria for determining the merge priority. Ohta in analogous art discloses

a communication network having a plurality of communication units, a communication unit that transmits messages and receives messages from a neighboring communication unit. Ohta further discloses that the more the number of mobiles increases the more the control packets for flooding increases (page 1, col 2, line 13 - 18) and that the number of clustermember which each clusterhead manages is bound by a constant (merge priority comparing the number of active communication units (control packets) to the number total communication units in the neighboring communication network) (see page 1, col 1, lines 23 - 26). Furthermore, Examiner takes official notice that merging of network with a priority based on size of member of a network was known in the art at the time of the invention to control the size of the network. It would therefore have been obvious to a person having ordinary skills in the art, at the time the invention was made, to incorporate the teaching of Ohta into the disclosure of Schrader in view of Rune, to have the merge priority module determine the merge priority for a neighboring communication network based upon a comparison of the number of active communication unit in the neighboring communication network with a number of total communication units in the neighboring communication network so as to control packet flooding from increasing exponentially.

Re claim **34**, as applied to claim 33 above, it has similar limitations claim 17 above which are met by the reference above and is rejected for the same reason of obvious as above.

Re claim **39**, as applied to claim 36 above, it has similar limitations claim 17

above which are met by the reference above and is rejected for the same reason

of obvious as above.

Allowable Subject Matter

15. Claims 18, 35, and 40 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject

matter: Claims 18, 35 and 40 contain similar subject matter. They all further limit

a merge priority to a quotient of the number of active communication units and

the number of total communication units for each neighboring network. The prior

arts of record are silent on this feature and it is not made obvious given the prior

arts of record.

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed

within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to OPIRIBO GEORGEWILL whose telephone number is (571)270-7926. The examiner can normally be reached on Monday through Thursday, 9:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis G. West can be reached on (571)272-7859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

/OPIRIBO GEORGEWILL/   /Lewis G. West/
Examiner, Art Unit 2617   Supervisory Patent Examiner, Art
                                                   Unit 2617